

L 42196-65 EWG(j)/EWG(r)/EWT(1)/FS(v)-3/EWG(v)/EWG(a)-2/EWG(c) Pb-4//  
Pe-5 AFMTC/AFMDC/AMD/APGC DD

ACCESSION NR: AT5010597

UR/51.47/64/003/000/0043/0052

AUTHOR: Gramenitskiy, P. M.; Savich, A. A.

TITLE: Results of an experimental analysis of decompression gas embolism

SOURCE: AN SSSR. Institut evolyutsionnoy fiziologii. Funktsii organizma v usloviyakh izmenennoy gazovoy sredy, v. 3, 1964, 43-52

TOPIC TAGS: aeroembolism, decompression sickness, respiration, cardiovascular system

ABSTRACT: The author studied two groups of animals, rabbits and dogs. In the first experiments, rabbits were studied after decompression. Gas formation in the vasculature and tissues was visually studied, in both live and dead animals. In the second group of animals (dogs) the formation of gas was observed by means of gas traps and centrifuged blood. At the same time changes in respiration and cardiovascular activity of the dogs were observed. Visual observation of gas formation in the vasculature was studied in 22 rabbits weighing 2—3.5 kg. The animals were placed in a pressure chamber under pressures of 2.25—5 atm for 6 hr. Decompression

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took place within either 10—15 sec or 50—60 sec. A number of animals were killed by electric shock immediately after exposure; others were anesthetized.

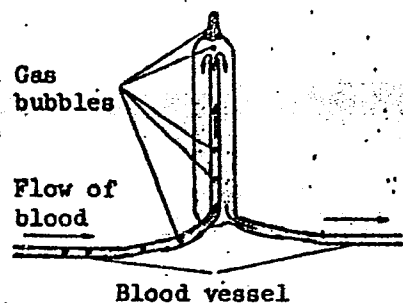


Fig. 1. Gas trap system

Studies using gas traps and centrifuged blood were conducted on 30 dogs. Fig. 1 shows a typical gas trap system. The results of the experiment showed that rabbits killed immediately after decompression from 6 hr exposure to 2.25 atm or higher exhibited gas formation, in both veins and arteries, in various parts of the body. Under the same conditions, gas formation was observed in isolated arterial prepa-

rations and resected arteries of live rabbits within 15 min of decompression.

When post-decompression gas formation took place in the venous blood of dogs, the appearance of gas bubbles in gas traps injected into the carotid artery was observed as a rule. This corresponded to increased arterial pressure and bradycardia. Air was not observed in the arterial

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blood of dogs into which air had been injected intravenously. When animals had been thoroughly supersaturated by nitrogen after exposure to 3.25 atm for 15 min and decompressed, conditions occurred for gas formations in arterial vasculature. However, since the flow of arterial blood was so fast, gas bubbles could not attain visible dimensions. These studies indicate that nitrogen diffuses slowly both in lungs and, evidently, in tissues. Orig. art. has 2 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: PH, LS

NO REF SOV: 007

OTHER: 007

ATD PRESS: 3240-F

Card 3/3

L 42195-65 EWG(j)/EWG(r)/EWT(1)/FS(v)-3/EWG(v)/EWG(a)-2/EWG(c)  
Pb-4/Pa-5 AFFTC/AFMDC/AMD/APQC DD

ACCESSION NR: AT5010598

UR/3147/64/0013/000/0053/0059

AUTHOR: Gramenitakiy, P. M.; Savich, A. A.; Yurova, K. S.

37  
B+1

TITLE: The action of various intravenously injected gasses on the organism

SOURCE: AN SSSR, Institut evolyutsionnoy fiziologii. Funktsii organizma v usloviyakh izmenennoy gazovoy sredy, v. 3, 1964, 53-59

TOPIC TAGS: intravenous gas injection, aereobolism, decompression sickness

ABSTRACT: The authors studied the effects of intravenously injected oxygen, carbon dioxide, nitrogen, and helium on 50 cats and 18 rabbits. Fifteen chronic experiments were conducted on rabbits. Acute experiments took place under hexenal anesthesia. A kymograph was used to record respiration and blood pressure in the left femoral artery. A canule was introduced into the right femoral vein for the injection of gases, and the rate at which gas could be injected into the vein was accurately regulated. In a number of acute experiments, animals breathed pure oxygen or helium-oxygen mixtures when gas was injected. In such cases tracheotomies were conducted and respiration took place by means of a small valve which was con-

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nected to the tracheotomy tube. In 14 experiments a comparative analysis of the reaction of animals to the intravenous injection of gasses was conducted on animals with intact nervous systems and on animals with resected vagus nerves. In all, there were 15 carbon dioxide, 40 oxygen, 90 air, and 26 helium-oxygen-mixture injections. The rate at which gasses were injected depended upon the objective of the experiment. In chronic experiments, gasses were injected into the auricular vein of rabbits and their condition and behavior were then observed.

The experiments showed that changes in respiration and circulation produced by intravenous injection of various gasses were very close to changes in these functions observed during acute decompression disruptions. This indicated that aeroembolism of the venous system and lung vasculature play a dominant role in decompression disruptions. It was also found that different gasses, injected intravenously, differed in their physiological effect. The most acute physiological effect occurred when nitrogen was injected. In descending order, helium, oxygen, and carbon dioxide had less effect on the organism. This can be explained by the fact that the diffusion of the gasses administered differed and that oxygen and carbon dioxide were

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already chemically associated with the organism. The consequences of artificial aeroembolism in its most severe stage depend upon the diffusion: correlationship which occurs in the lungs between aeroembolisms and gaseous mixtures which accumulate in alveolar areas. In the elimination of aeroembolisms, the diffusion of gasses from lung capillaries in the alveoli play a leading role. These facts should be considered when analyzing decompression disruptions or their treatment. The authors concluded that aeroembolism can serve as an experimental model for general decompression disruptions. Orig. art. has 4 figures.

ASSOCIATION: none

SUBMITTED: 00

NO REF SOV: 004

ENCL: 00

OTHER: 000

SUB CODE: PH, 1S

ATD PRESS: 3240-F

indb  
Card 3/3

L 42193-65 EWG(j)/EWG(r)/EWT(1)/FS(v)-3/ENG(v)/EWG(a)-2/ENG(c) Pb-4/  
Pe-5 AFFTC/AFMDC/AMD/APGC DD  
ACCESSION NR: AT5010600 UR/3147/64/003/000/0067/0071

AUTHOR: Gramenitskiy, P. M.; Savich, A. A.

37  
B+1

TITLE: The role of hypoxemia in the development of decompression disruptions

SOURCE: AN SSSR. Institut evolyutsionnoy fiziologii. Funktsii organizma v usloviyakh izmenennoy gazovoy sredy, v. 3, 1964, 67-71

TOPIC TAGS: decompression sickness, aeroembolism, hypoxemia, hypercapnia

ABSTRACT: There has been a paucity of data on how gas transport in the blood is altered during decompression disruption. Since this problem is of both theoretical and practical interest, the authors studied the blood gas of animals exposed to increased pressure followed by decompression or artificial aeroembolism.

Both acute and chronic experiments were conducted on male and female dogs weighing from 12 to 30 kg. In the chronic experiments, animals were placed in a compression chamber under pressures of 1.6--2.0 atm for 4 hr or under pressures of 4.5 atm for 35, 40, 45, and 50 min. Following

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exposure to these increased pressures decompression took place at a rate of 10 m/min. Arterial blood was taken by puncture from the femoral artery both while the animals were in the chamber and at various periods after decompression. In the acute experiments, dogs anesthetized with morphine and hexanol after tracheotomy were placed in a compression chamber and exposed to pressures of 5.0 and 7.0 atm for periods sufficient to produce significant decompression disorders after rapid decompression. When decompression at a rate of 10 m/min had taken place, respiratory movements were registered on a kymograph. An analysis of blood pressure and arterial blood was also conducted. In a number of tests, gas formation in venous blood was conducted by means of gas traps developed by the authors in 1963. In all, 14 chronic and 6 acute experiments were conducted.

The results showed that the development of acute forms of decompression disruptions are also accompanied by extreme hypoxemia and hypercapnia. A lowered oxygen content in the arterial blood of animals exposed to subthreshold levels of increased pressure is significant even when typical decompression symptoms are lacking. Hypoxemia and hypercapnia always

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L 42193-65

ACCESSION NR: AT5010600

follow aeroembolisms which occur in capillaries. Changes in the gas composition of arterial blood with respect to oxygen and carbon dioxide are definite factors in the reaction of the organism to decompression. 0  
Orig. art. has 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: PH, LS

NO REF SOV: 002

OTHER: 003

ATD PRESS: 3240-F

MOB  
Card 3/3

L 41999-65 ENG(j)/ENG(r)/ENT(1)/FS(v)-3/ENG(v)/ENG(a)-2/ENG(c) Pe-5 DB  
ACCESSION NR: AT5010614 UR/3147/64/003/000/0180/0186  
32  
B+1  
AUTHOR: Savich, A. A.  
TITLE: Development of dinitrophenol hyperthermia with variations in the fractional pressures of oxygen and carbon dioxide  
SOURCE: AN SSSR. Institut evolyutsionnoy fiziologii. Funktsii organizma v usloviyakh izmenennoy gazovoy sredy, v. 3, 1964, 180-186  
TOPIC TAGS: partial pressure, oxygen uptake, vacuum chamber, toxic effect, carbon dioxide exchange, hyperthermia, heat balance  
ABSTRACT: 2,4-dinitrophenol (DNP) is widely used by Soviet researchers in studying experimental hyperthermia. This compound quickly induces a high fever and intensifies oxygen consumption. A series of experiments was done on rabbits to obtain information on the toxic effect of oxygen. Changes in the fractional pressures of oxygen and carbon dioxide in inhaled air affected the development of DNP hyperthermia in the animals. The fractional pressure of oxygen was the more powerful factor in the hyperthermic effect induced by DNP. When the fractional pressure of O<sub>2</sub> in inhaled air was reduced by one-half, which occurred when the animals were elevated to an altitude of 5500 m in a vacuum chamber, the onset of hyperthermia  
Card 1/2

L 41999-65

ACCESSION NR: AT5010614

was prevented. Hyperthermia was accelerated most noticeably by intravenous injection of DNP in an atmosphere of compressed oxygen. The administration of DNP markedly altered the nature of the animals' reactions to high and low fractional pressures of oxygen and carbon dioxide. Orig. art. has: 4 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: LS

NO REF SOV: 010

OTHER: 000

Card 2/2

ACC NR: AT6036566

SOURCE CODE: UR/0000/66/000/000/0176/0177

AUTHOR: Zal'tsman, G. L.; Zinov'yeva, I. D.; Savich, A. A.; Selivra, A. I. 2/

ORG: none

TITLE: The functional state of nervous system centers in humans and animals during the formation of convulsive reactions to hyperoxia [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 176-177

TOPIC TAGS: hyperoxia, central nervous system, oxygen induced convulsion, electroencephalography

ABSTRACT: A complex study was made of higher nervous activity, EEG's and EMG's (electromyograms) and cardiovascular and respiratory system parameter measurements in human subjects who breathed high-pressure (3.5 and 4 at) oxygen until the initial pathological epileptoid symptoms appeared. Experiments beyond that point utilized dogs and rabbits. In the animal experiments, electrodes were implanted in various parts of the brain, including deep structures, and electrograms were made during respiration of oxygen at pressures up to 5 at various stages of the formation of the convulsive reaction.

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L 10948-67

ACC NR: AT6036566

It was found that in the initial stage of hyperoxia, high voltage discharges appear on the EEG of humans and the electrosubcorticogram of animals. These shifts are compensated in this stage and do not affect behavioral and sympathetic reactions, which show adaptive changes only.

In the final stage of high pressure oxygen breathing -- the precursor period -- whole groups of subcortical and cortical structures are recruited into the process, and dysfunctions of the motor, cardiovascular, respiratory, and other systems of the organism simultaneously appear.

This precursor stage is followed by the onset of chronic convulsions due to profound disturbance of the normal processes of cerebral regulation, and the appearance in all structures of epileptoid pathological rhythms. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

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ACC NR: AT6032741

SOURCE CODE: UR/0000/66/000/000/0125/0135

AUTHOR: Savich, A. I.

ORG: none

TITLE: Determination of the elastic and filtration properties of rocks by means of ultrasonics

SOURCE: AN SSSR. Institut fiziki Zemli. Geoakustika; ispol'zovaniye zvuka i ul'tra-zvuka v seysmologii, seysmorazvedke i gornom dele (Geoacoustics; the use of sound and ultrasound in seismology, seismic prospecting, and mining). Moscow, Izd-vo Nauka, 1966, 125-135

TOPIC TAGS: ultrasonics, <sup>injection,</sup> ~~well logging, seismic wave propagation,~~ elasticity, filtration, ~~petrology, seismology,~~ hydraulic engineering

ABSTRACT: The use of seismic and ultrasonic techniques to investigate the physical and mechanical properties of rocks in connection with the construction of hydraulic engineering projects is considered. Specific examples are given to demonstrate the possibilities of the ultrasonic method in studying the elastic and filtration properties of rocks in situ, and the mathematical basis for the use of the method is given. The efficiency and economy of using seismic and ultrasonic investigations in engineering projects is emphasized. Orig. art. has: 21 formulas and 5 figures.

SUB CODE: 0820/SUBM DATE: 28Mar66/ ORIG REF: 002/ OTH REF: 008/  
Card 1/1

L 32158-66 EWT(1)

ACC NR: AP6010013

(A,N)

SOURCE CODE: UR/0387/65/000/011/0020/0034

AUTHOR: Savich, A. I.

ORG: All-Union Experimental Design and Planning Scientific Research Institute (Vsesoyuznyy proyektno-izyskatel'skiy i nauchno-issledovatel'skiy institut "Gidroproyekt")

TITLE: Elastic properties of rocks in solid masses at mining sites

SOURCE: AN SSSR. Izvestiya. Fizika Zemli, no. 11, 1965, 20-34

TOPIC TAGS: elastic modulus, seismography, acoustic signal, mining engineering,  
PHYSICAL GEOLOGY

ABSTRACT: A study was made of the basic mechanisms underlying elastic property changes in rock masses near mined areas. The elastic parameters, including moduli, were obtained by a complex of seismoacoustical methods.<sup>1,2</sup> The effects of massive rock removal were measured by a variable frequency modification method in conjunction with other methods. Three separate regions of elastic property variation were noted in which the cause for these changes was the change in pressure due to mining and natural pressure conditions occurring in mountains. Modifications of the seismoacoustic method was developed to allow flexibility in dealing with unsafe rock formations. In weak, crumbling rocks the values of the elastic parameters, determined by the variable frequency modification method, were confirmed by other methods. However, with increases in the

UDC: 550.834

Card 1/2

NIKITIN, V.N.; SAVICH, A.I.

Determination of the velocity of transversal waves from individual  
hodographs of refracted waves of the PSP type. Razved.i prom.  
geofiz. no.44:27-32 '62. (MIRA 15:7)  
(Seismic prospecting)



NIKITIN, V.N., inzh.; SAVICH, A.I., inzh.

Seismic prospecting as part of engineering geology studies for  
hydraulic construction. Gidr. stroi. 32 no.2:14-17 F '62.  
(MIRA 15:7)

(Seismic prospecting) (Hydraulic engineering)

SAVICH, A.L.

Pedagogical Society of the University of Moscow. Vest.Mosk.un.8  
no.10:131-143 0 '53. (MLRA 7:1)  
(Moscow University) (Educational associations)

SAVICH, A. M.

"Orthodontia Dental Orthopedics of Irregular Upper Front Teeth in Adults," Stomatologiya,  
No. 3, 1948.

SAVICH, A.P.; ZAVIL'GEL'SKIY, G.B.

Cross-linkages and locally denatured areas induced in double-strand DNA by ultraviolet rays of different wavelengths. Dokl. AN SSSR 162 no.4:952-955 Je '65. (MIRA 18:5)

1. Institut radiatsionnoy i fiziko-khimicheskoy biologii AN SSSR.  
Submitted August 22, 1964.

ZAVIL'CEL'SKIY, G.B.; MINCHENKOVA, L. Ye.; MINYAT, E. Ye.; SAVICH, A.P.

Development of the denaturation process in DNA irradiated with  
ultraviolet rays. Biokhimiia 30 no. 3:652-662 My-Je '65  
(MIRA 19:1)

1. Institut radiatsionnoy i fiziko-khimicheskoy biologii AN  
SSSR, Moskva.

Savich, A. V.

USSR/Nuclear Physics - Unstable isotopes

FD-1654

Card 1/1      Pub. 146-14/25

Author : Savich, A. V. (Moscow)

Title : Absence of stable isotopes of Tc and Pm and other anomalies in the expansibility of beta-stable nuclei

Periodical : Zhur. eksp. i teor. fiz. 28, 361-368, March 1955

Abstract : The author establishes the regularities in the arrangement of the atomic nuclei in the nuclear diagram, at the basis of which regularities lies the criterion governing the maximum of the binding energy of the isobar. All infractions of these regularities are connected with the filling of the nuclear shells. The absence of stable isotopes Tc (43) and Pm (61) is one of particular cases of such an infraction. Thirteen references, 4 USSR (e.g. V. A. Kravtsov, Usp. fiz. nauk, 54, 3, 1954 and 47, 341, 1952).

Institution:

Submitted : October 12, 1953; October 25, 1954 (after reworking)

*Savich, A. V.*

Category : USSR/Nuclear Physics - Structure and Properties of Nuclei C-4

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 5915

Author : *Savich, A. V.*

Title : Nuclear Shells and the Classification of Atomic Nuclei.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 3, 501-510

Abstract : A model of a three-dimensional quantum oscillator with consecutive filling of shells yields the magic numbers 2, 8, 20, 40, 70, and 112. The author proposes that it is possible to have along with a consecutive filling of the shells, also a non-consecutive one, with one of the shells omitted. Let  $n_1$  be the number of shells filled sequentially, starting with the first, and  $n_2$  the number of shells filled after one unfilled shell. From the energy point of view, the methods of filling, at which  $n_1 > n_2$ , are less convenient; this leads to the formation of "subshells." The author believes that different configurations of shell filling can occur in the same nucleus; one of the configurations corresponds to the ground level, and the other, energetically less suitable, corresponds to excited levels. Each configuration can be denoted by the

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Chemical Protection From Effects (Cont.)

SOV/2206

empirical selection of protective agents. Possible mechanisms of protective action are discussed. No personalities are mentioned. There are 219 references: 32 Soviet, 142 English, 19 German, 24 French, 1 Czech, and 1 Italian.

TABLE OF CONTENTS:

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SAVICH, A.V., SHAL'NOV, M.I.

Decomposition of polynucleotides and their precursors caused by  
gamma radiation. Radiobiologiya 1 no.1:23-29 '61. (MIRA 14:7)  
(GAMMA RAYS--PHYSIOLOGICAL EFFECT) (NUCLEOTIDES)

28185

S/190/61/003/010/014/019  
B124/B110

15.8150 2209, 1555,  
AUTHORS: Zelentsov, V. V., Pai Wen-ming, Savich, I. A., Spitsyn, V. I.

TITLE: Chelate polymers of uranyl

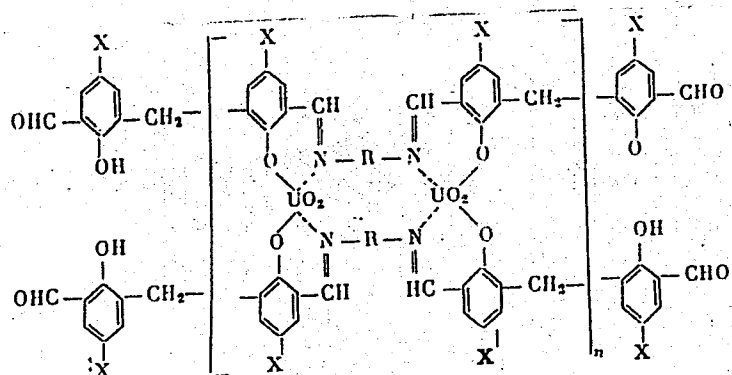
PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 10, 1961,  
1535-1543

TEXT: The present paper describes the synthesis and some properties of polychelate- (or coordination-) compounds of uranyl with poly-Schiff's bases which had been synthesized from 3,3'-methylene-bis-5-bromo salicyl aldehyde (BSA) and some diamines. The chelate polymers synthesized can be illustrated by the general formula

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Chelate polymers of uranyl

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S/190/61/003/010/014/019  
B124/B110



where  $X = Cl$  or  $Br$ , and  $R = -CH_2-CH_2-$ ; /.

As compared to 5,5'-methylene-bis-salicyl aldehyde (MSA), the 3,3'-methylene-bis-5-chloro salicyl aldehyde (CSA) and the 3,3'-methylene-bis-5-

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S/190/61/003/010/014/019  
B124/B110

## Chelate polymers of uranyl

bromo salicyl aldehyde (BSA) react much faster, with considerably higher yields, and without resin formation. The synthesis of CSA and BSA proceeds under heating of a solution of the respective aldehyde in a mixture of concentrated  $H_2SO_4$  and glacial acetic acid with paraformaldehyde. The preparations were purified by recrystallizing from glacial acetic acid. The poly-Schiff's bases were synthesized by reacting of equimolecular quantities of the respective bis-aldehydes with diamines in their methanolic-benzene solution heated to boiling temperature. They are microcrystalline, yellow to light-brown powders insoluble in usual solvents; some properties of these substances are given in Table 1. For synthesizing the chelate polymers of uranyl, the reaction of uranyl acetate with the corresponding dialdehydes and diamines (molar ratio 1 : 1 : 1) in benzene-alcoholic solution heated to boiling temperature is most advantageous. In this way, six chelate polymers of uranyl were synthesized, the composition and some properties of which are given in Table 2. The formulas assumed on the basis of results of ultimate analysis are confirmed by the infrared absorption spectra. All chelate polymers of uranyl are almost insoluble in usual solvents; in pyridine and tetrahydrofuran, they are poorly soluble. Up to 270-300°C, they are stable, and with heating (10 hr) to 200°C no

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B124/B110

Chelate polymers of uranyl

considerable loss in weight occurs. The derivatives of CSA are somewhat more resistant to heat than those of BSA; the heat resistance of polychelates of uranyl decreases in the sequence o-phenylene diamine > p-phenylene diamine > ethylene diamine. The density of compounds synthesized from BSA is lower than that of compounds synthesized from CSA. With equal dialdehyde it decreases in the sequence ethylene diamine > o-phenylene diamine > p-phenylene diamine. All synthesized polychelates of hexavalent uranium are paramagnetic. The synthesis of 5-chloro salicyl aldehyde, 5-bromo salicyl aldehyde, BSA, CSA, poly-Schiff's bases, and uranyl polychelates is described. There are 2 tables and 12 references: 2 Soviet and 10 non-Soviet. The two most recent references to English-language publications read as follows: C. S. Marvel, N. Tarköy, J. Amer. Chem. Soc., 80, 832, 1958; C. S. Marvel, P. V. Bonsigury, J. Amer. Chem. Soc., 81, 2668, 1959. C. S. Marvel, N. Tarköy, J. Amer. Chem. Soc., 79, 6000, 1957.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED:  
Card 4/11

November 21, 1960

SAVICH, A.V.; SHAL'NOV, M.I. (Moscow)

Action of sodium persulfate on pyrimidine bases. Zhur.fiz.khim,  
35 no.11:2509-2513 N '61. (MIRA 14:12)  
(Sodium peroxydisulfate)  
(Pyrimidine)

ANDRAGOVA, M. I., SAVICH, A. V., and SHALINOV, M. I.

"Effects of Inorganic peroxides on radiochemical transformation of purines and pyrimidines in aqueous solutions."

→ paper presented at the Symposium on Biological Effects of Ionizing Radiation at the Molecular Level, Brno, 2-6 July 1982.

(IAEA),

AMIRAGOVA, M. I.; KOSHCHHEYENKO, N. N.; SAVICH, A. V.

Action of gamma irradiation on alkaline hemin solutions.  
Radiobiologiya 2 no.3:365-369 Je '62. (MIRA 15:7)

(GAMMA RAYS) (HEMINS)



S/205/62/002/005/003/017  
D268/D308

AUTHORS: Duzhenkova, N.A., Parfenov, Yu.D., Savich, A.V., and Yartsev, Ye.I.

TITLE: Radiochemical conversions of aqueous solutions of tryptophan

PERIODICAL: Radiobiologiya, v. 2, no. 5, 1962, 662 - 666.

TEXT: An aqueous solution of Soviet dl-tryptophan ( $5 \times 10^{-4}$  M) diluted to  $2.5 \times 10^{-4}$  M in each of 3 media and exposed to Co60 gamma radiation at 300 rad/min was used to determine the relationship of some tryptophan radiolytic products (ammonia, anthranilic acids, and kynurenine) to concentration and pH. Also studied were the effects of the protective cysteine hydrochloride and the sensitizing  $\text{Na}_2\text{S}_2\text{O}_8$  on tryptophan radiolysis. The yield of radiochemical decomposition products was markedly affected by the pH of the solution. Maximum amino acid resistance in neutral medium was at pH 5.89. The quantity of anthranilic acids and kynurenine formed at the disruption of the indole ring increased with enhanced alkalinity of the solution. ✓

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Radiochemical conversions of ...

S/205/62/002/005/003/017  
D268/D308

The protective effect of cysteine hydrochloride was determined at pH 2.7 and 11 and was also found markedly dependent on the pH of the medium, being more pronounced in acid than in alkaline media, showing that cysteine acts as an acceptor of H and HO<sub>2</sub> radicals. There are 5 figures.

SUBMITTED: March 2, 1962

Card 2/2

AMIRAGOVA, M.I.; DUZHENKOVA, N.A.; SAVICH, A.V.; SHAL'NOV, M.I.;  
PODOSHVINA, V.A., red.

[Primary radiobiological processes] Pervichnye radio-  
biologicheskie protsessy. [By] M.I. Amiragova i dr.  
Moskva, Atomizdat, 1964. 286 p. (MIRA 17:12)

L 62122-65 EWT(d) Pg-4 IJP(c)

ACCESSION NR: AP5011504

UR/0188/65/000/002/0081/0091  
531.394

AUTHOR: Savich, A. V.

TITLE: Difference equations of dynamics in Hamiltonian form

SOURCE: Moscow. Universitet. Vestnik. Seriya 3. Fizika, astronomiya, no. 2, 1965, 81-91

TOPIC TAGS: dynamics, Newton's equation, Hamiltonian equation, continuity, difference equations, conservation law, transformation property

ABSTRACT: The author points out in the introduction that the usual Newton's differential equations of mechanics are based on the assumption that the motion is continuous, so that certain conservation and invariance properties are lost if difference methods are used for approximate calculations. He therefore formulates difference equations for the dynamics of a system of material points, covariant with respect to rotation and displacement of the origin, reversible in time, and producing an integral of the energy and of the momentum

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L 62122-65

ACCESSION NR: AP5011504

under the same conditions as differential equations. The equations are written in Hamiltonian form, using special operators for finite-difference relations, close in their properties to the operators of partial differentiation. These equations can be used for intermittent motion or sequences of small finite displacements in space, occurring within finite intervals of time. The equations conserve the most important transformational properties of the corresponding differential equations and lead to energy and momentum conservation laws. A solution of these equations is given for the problem of small oscillations and for the motion of a charged particle in a constant magnetic field. In these equations the space and time are assumed continuous, but the motion is assumed discrete. A limitation on the method is that the approximation become inapplicable in very strong fields. 'The author thanks Professor A. A. Vlasov for formulating the problem and for valuable remarks.' Original article has: 43 formulas

Card

2/3

L 62122-65

ACCESSION NR: AP5011504

ASSOCIATION: Kafedra teoreticheskoy fiziki Moskovskogo gosudarstvennogo universiteta (Department of Theoretical Physics, Moscow State University)

SUBMITTED: 25Feb64

ENCL: 00

SUB CODE: GP, ME

NR REF SOV: 001

OTHER: 001

*lls*  
Card 3/3

GRANOVSKAYA, M.L.; ORINEV, V.S.; DUZHENKOVA, N.A.; KRUSHINSKAYA, N.P.;  
SAVICH, A.V.

Determination of yields of the radiochemical decomposition of  
tryptophan and guanine by means of mathematical analysis of the  
absorption spectra of solutions. Radiobiologiya 5 no.5:633-  
637 '65. (MIRA 18:11)

ACC NR: AM5008927 . . . . . BOOK EXPLOITATION . . . . . UR/

Aniragova, M. I.; Duzhenkova, N. A.; Savich, A. V.; Shal'nov, M. I.

Primary radiobiological processes (Pervichnyye radiobiologicheskiye protsessy)  
Moscow, Atomizdat, 1964. 286 p. illus., biblio. 2700 copies printed. Editor:  
V. A. Podoshvina; Technical editor: Ye. I. Mazel'; Proofreader: M. I. El'ma

TOPIC TAGS: amino acid, ionizing radiation biologic effect, nucleic acid, porphyrin  
compound, radiation biochemical effect, radiation cell effect, radiation tissue effect

PURPOSE AND COVERAGE: This monograph was intended for specialists in the fields of  
radiology and radiation chemistry, as well as for chemists and physicists interested  
in the effect of ionizing radiation on living organisms. In this monograph, the  
transformation of the energy of ionizing radiation in biologic media and the effect of  
radiation on three classes of biologically important compounds: (1) nucleic and low-  
molecular material entering into their composition; (2) porphyrins and other materials  
playing an important role in tissue respiration; and (3) amino acids and albumins are  
analyzed; also analyzed is the role of these processes in the injurious effect of radi-  
ation. The authors express their gratitude to N. V. Timofeyev-Resovski for his in-  
valuable advice.

Card 1/2



ACC NR: AN5008927

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Ch. II. Effect of radiation on nucleic acids (M. I. Shal'nov)	- - 52 - - 7
Ch. III. Effect of radiation on porphyrin-containing compounds (M. I. Amiragova)	-
Ch. IV. Effect of radiation on amino acids and albumins (N. A. Duzhenkova)	- - 140
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SUB CODE: 06

/SUBM DATE: 10Oct64

/ORD REF: 214

/OTH REF: 461

Card 2/2

ZVERKOVA, M., kand.tekhn.nauk; SAVICH, B., inzh. (Leningrad)

Soundproofing of walls and ceilings in large-panel apartment houses.  
Zhil.-kom. khoz. 10 no.12:3-5 '60. (MIRA 13:12)  
(Architectural acoustics)

GORYUNOV, N.N.; SAVIN, B.I.; SOSNOVETS, E.N.

Transistorized electrometric amplifier for measuring weak currents  
from detectors of charged particles. Kosm. issl. 3 no.1:172-174  
Ja-F '65. (MIRA 18:2)

SAVICH, B.; MOROZOV, A.G.

Large scale vaccination for sheep with dry brucellosis vaccine from strain no.19. Veterinariia 33 no.10:44-48 0 '56.

(MLRA (9:10)

1. Direktor Pyatigorskogo mezhsovkhoznoy vetbaklaboratorii (for Savich). 2. Zaveduyushchiy protivobrutselleznym otdelom laboratorii (for Morozov).

(Stavropol Territory--Brucellosis in sheep--Preventive inoculation)  
(Vaccines)

SAVICH, B.M. . .

Courses on the control of poultry diseases. Ptitssevodstvo 8  
no.11:47-48 N '58. (MIRA 11:11)

1. Direktor Pyatigorskoy mezhhoblastnoy vetlaboratorii po bor'be  
s boleznyami ptits.  
(Poultry--Diseases and pests)

SAVICH, B.M.; PETRUSHKIN, A.A.; MALAKHOVA, L.S.

An infectious disease of young chicks which occurs with symptoms of conjunctivitis. Ptitsevodstvo 9 no.2:31-33 F '59.

(MIRA 12:3)

1.Direktor Pyatigorskoy mezhoblastnoy veterinarnoy laboratorii po bor'be s boleznyami ptitsy (for Savich). 2.Zaveduyushchiy otdelom laboratorii po bor'be s boleznyami ptitsy (for Petrushkin, Malakhova).

(Poultry--Diseases and pests)  
(Antibiotics)

SAVICH, B.M.; MOROZOV, A.G.

Norsulfazole sodium and sulfadimezine in pasteurellosis (cholera)  
of poultry combined with vaccination. Veterinariia 36 no.9:34-35  
S '59. (MIRA 12:12)

1. Pyatigorskaya veterinarnaya laboratoriya po bor'be s boleznyami  
ptits.

(Sulfathiazole) (Sulfamethazine) (Chicken cholera)

SAVICH, B.M.; POSOKHIN, Ye.G.; MALAKHOVA, L.S.; PETRUSHKIN, A.A.; MARKOV, V.P.;  
KULIKOVA, V.N.; DAKHKIL'GOVA, P.F.; SHCHERBININ, P.G., veterinary vrach

Testing avirulent vaccine against pasteurellosis of poultry.  
Veterinariia 39 no.12:32-37 D '62. (MIRA 16:6)

1. Pyatigorskaya mezhoblastnaya veterinarnaya laboratoriya po bor'be  
s boleznyami ptitsy (for all except Shcherbinin). 2. Pyatigorskiy  
sovet narodnogo khozyaystva (for Shcherbinin).  
(Chicken cholera—Preventive inoculation)



AVENIROVA, Ye.D.; SAVIN, B.M.; SYTINSKIY, I.A.

Effect of oxygen starvation and acceleration on the content  
of glutaminic and  $\gamma$ -aminobutyric acid in brain tissues. Vop.  
med. khim. 10 no.6:595-600 N-D '64. (MIRA 19:1)

1. Laboratoriya khimii belka Leningradskogo universiteta i  
kafedra aviatsionnoy meditsiny Voenno-meditsinskoy ordena  
Lenina akademii imeni Kirova, Leningrad.

MALYAVIN, A.G.; Prinsipali uchastiye: ROMIN, A.V.; SAVICH, B.M.; STEL'MAKH,  
A.A.; SHUL'GIN, O.N.; YAKOVLEV, A.S.

Therapeutic effectiveness of furazolidon F-60. Zhur. mikrobiol. epid.  
i immun. 31 no.7:48-52 J1 '60. (MIRA 13:9)

1. Iz Gosudarstvennogo nauchno-kontrol'nogo instituta veterinarnykh  
preparatov Ministerstva sel'skogo khozyaystva SSSR.  
(FURAZOLIDONE) (FURANS)

GENES, S.G.; PLAVSKAYA, A.A.; SAVIN, B.M.; YAVLINSKIY, M.D.

Hypoglycemic activity of N-benzenesulfonyl-N<sup>1</sup>-isopropylurea  
and N-benzenesulfonyl-N<sup>1</sup>-p-butylurea. Farm. i toks. 28  
no.1:91-92 Ja-F '65. (MIRA 18:12)

1. Ukrainskiy institut eksperimental'noy endokrinologii i  
Zaved endokrinnykh preparatov, Khar'kov. Submitted July 29,  
1963.

SAVICH, B.S.; KOZYREV, V.M.; VERSHININ, I.I.; UZUNOV, N.N.

Throughout the Soviet Union, Veterinariia 36 no.4:95-96 Ap '59.  
(MIRA 12:7)

(Poultry--Diseases and pests)

(Fishes--Diseases and pests)

SAVICH, D.; MAKSURI, A.

Increase the role of the departments of labor in utilizing the hidden potentialities of production. Sots. trud 8 no.1:35-42  
Ja '63. (MIRA 16:2)

1. Nachal'nik otdela kadrov, truda i zarabotnoy platy  
Upravleniya mashinostroitel'noy promyshlennosti Donetskogo  
soveta narodnogo khozyaystva (for Savich). 2. Nachal'nik  
TSentral'noy nauchno-issledovatel'skoy laboratorii po trudu  
Upravleniya mashinostroitel'noy promyshlennosti Donetskogo  
soveta narodnogo khozyaystva (for Maksuri).  
(Donetsk Province—Machinery industry—Production standards)

ARNOL'DOV, I.E.M.; GONTA, T.T. [Honta, T.T.]; KALECHITS', V.V.;  
MIKHLENKO, O.I.; MEYIN, Ya.M.; MURZIN, O.M.; SAVICH, D.M.;  
TOMASHCHUK, V.D.; SHVANSKIY, A.M. [Shvans'kyi, A.M.];  
HUKAVISHNIKOVA, A.I., red.; RAYTBURD, L., red.; GORKAVENKO, L.  
[Horkavenko, L.], tekhn.red.

[Chemical industry of the Ukraine] Khimichna promyslovist'  
Ukrainy. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR, 1960. 128 p.  
(MIRA 13:11)

(Ukraine--Chemical industries)

SAVICH, G. A., Physician

"Age Variability of the Wall Structure of the Arteries in Human Limbs." Thesis for degree of Cand. Medical Sci. Sub 6 Jun 49, Second Moscow State Medical Inst imeni I. V. Stalin.

Summary 82, 18 Dec 52, Dissertations Presented For Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

SAVICH, G. A.

Extremities (Anatomy)

Macro-microscopic study of the vascular wall of large arterial stems in human extremities.  
Uch.zap.Vt.mosk.med.inst. 2, 1951.

Monthly List of Russian Accessions, Library of Congress, April 1952. Unclassified.



GRIGOR'YEVA, T.A.; SAVICH, G.A. (Moskva)

Meeting of the Moscow Society of Anatomists, Histologists,  
and Embryologists. Arkh.anat.gist.i embr. 33 no.3:100-101  
J1-S '56. (MIRA 12:11)

(ANATOMY--PERIODICALS)

SAVICH, G.A., (Moskva, A-8, Ivanovskaya ul., 30a, kv.4)

Moscow Society of Anatomists, Histologists, and Embryologists during  
the decade 1950-1960. Arkh.anat. gist. i embr. 40 no.3:104-107  
Mr '61. (MIRA 14:5)

1. Uchenyy sekretar' Moskovskogo nauchnogo obshchestva anatomov,  
gistologov i embriologov.  
(MOSCOW--ANATOMICAL SOCIETIES)

GRIGOR'YEVA, T.A., prof., red.; ZELENIN, A.V., kand. med. nauk, red.;  
SAVICH, G.A., kand. med. nauk, red.

[Transactions of the First Conference of Young staff Members of  
Morphological Laboratories in Moscow] Trudy pervoy konferentsii  
molodykh nauchnykh sotrudnikov moskovskikh morfologicheskikh  
laboratorii. Pod red. T.A.Grigor'evoi, A.V.Zelenina i G.A.Savich.  
Moskva, Vses. ob-vo anatomov, gistologov i embriologov, 1959. 139 p.  
(MIRA 15:4)

1. Konferentsiya molodykh nauchnykh sotrudnikov moskovskikh mor-  
fologicheskikh laboratoriy. 1st.  
(Morphology(Animals))—Congresses))

L 16094-66 EWT(d)/EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(l) JD/HW/DJ

ACC NR: AT5022782

SOURCE CODE: UR/3164/64/000/014/0040/0043

AUTHOR: Chuyko, P. I. (Engr.); Savin, G. A. (Engr.); Kolesnikov, V. N. (Engr.); Putyatina, Z. V. (Engr.); Isayev, I. N. (Engr.)

ORG: none

TITLE: Production of size 40 x 2.0 and 40 x 1.5 mm pipes from stainless steel by cold drawing with a long mandrel

SOURCE: Dnepropetrovsk. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorsko-tehnologicheskii institut trubnyy promyshlennosti. Proizvodstvo trub, no. 14, 1964. Sbornik statey po teorii i praktike trubnogo proizvodstva (Collection of articles on the theory and practice of pipe production), 40-43

TOPIC TAGS: metal tube, cold working, metal drawing, stainless steel, lubrication

ABSTRACT: The experiments were conducted using a 30 t long-drawing tube-mill, equipped with a rolling mill with slanting rollers. Copper and oxalates were tested as lubricants for coating. Following the coppering and oxalating, the pipes were lubricated at temperatures of 50°C with a 6% solution of hard soap, and the outside surface was covered with castor oil and talc (proportion 8:2). The Card 1/2

L 16094-66

ACC NR: AT5022782

44,5516 4

experiments confirmed the possibility of obtaining stainless steel thin-walled pipes by cold drawing with a long mandrel and with a subsequent calibration by drawing without a mandrel. They also showed the possibility of producing pipes without an intermediate heat treatment. Orig. art. has: 1 figure and 1 table.

SUB CODE: //, 13 SUBM DATE: none/ ORIG REF: 003

Card 2/2 SYN

SAVIN, G.N. (Kiyev); GUZ', A.N. (Kiyev)

Stressed state near the holes in shells. Izv. AN SSSR Mekh. 1  
mashinostr. no.6:96-105 N-D '64.

(MIRA 18:2)

ZHUDIN, N.D.; SAVIN, G.N.

Aleksandra Ivanovna Strel'bitskaia, 1905-; on the occasion of  
her 60th birthday. Prikl. mekh. 1 no.11:138-139 '65.  
(MIRA 19:1)

KUDRYAVTSEV, A.S.; SAVICH, I.A.; NIKOLAYEV, L.A.

Catalytic properties of complex compounds with Schiff bases.  
Part 2. Zhur. fiz., khim. 37 no.11:2587-2589 N°63. (MIRA 17:2)

1. Moskovskiy institut inzhenerov transporta.



SAVICH, I. A.

Q-5

EAST GERMANY/Farm Animals - Swine.

Abs Jour : Ref Zhur - Biol., No 1, 1958, 2607

Author : I.A. Savich

Inst : -

Title : Breeding of Pedigreed Pigs and Control over Their Fattening in the Democratic German Republic.

Orig Pub : Svinovodstvo, 1957, No 3, 41-46

Abstract : On the development of animal husbandry and the organization of breeding of pedigreed pigs in the German Democratic Republic. Interoblast' inspection agencies of animal husbandry are units charged with the organization of local breeding procedures. Describes the structure, character and scope of work performed by the inspecting agencies. Special attention is given to the organization of control over the fattening of pigs, performed by control fattening stations in the zone under the jurisdiction of inspectors of animal husbandry.

Card 1/1

USSR/Farm Animals. Swine

Q-3

Abs Jour : Ref Zhur - Biol., No 19, 1958, No 88086

Author : Savich I.A.

Inst : -

Title : Swine Rearing in the German Democratic Republic

Orig Pub : Svinovodstvo, 1958, No 1, 43-47

Abstract : No abstract

Card : 1/1

SAVICH, I.A., kand.sel'skokhozyaystvennykh nauk, dotsent

Distribution and results of close inbreeding in swine raising  
[with summary in English]. Izv. TSKhA no.2:144-162 '61.

(MIRA 14:8)

(Swine breeding)

SAVICH, I.A., dots., red.; NECHIPORUK, L.P., red.; YARNYKH, A.M., red.;  
PEVZNER, V.I., tekhn. red.

[Handbook for the swine raiser] Spravochnik svinovoda. Pod  
red. I.A.Savicha. Moskva, Sel'khozizdat, 1962. 398 p.

(MIRA 16:5)

(Swine)

SAVICH, I.A., kand.sel'skokhozyaystvennykh nauk, dotsent;  
AKOPYAN, N.S., aspirant.

Some characteristics of metabolism in hybrid and purebred  
swine. Izv. TSKHA no.2:87-93 '62. (MIRA 15:9)  
(Swine breeding)  
(Metabolism)

SAVICH, I.A., dotsent, kand. sel'skokhoz. nauk

Problems of the intensification of swine raising and breeding  
work. Izv. TSKHA no.5:212-227 '64. (MIRA 18:5)

1. Kafedra svinovodstva Moskovskoy ordena Lenina sel'skokhozyayst-  
vennoy akademii imeni Timiryazeva.

KOBZOVA, R.I.; LEVKINA, N.K.; KUDRYAVTSEV, A.S.; SAVICH, I.A.; OPARINA,  
Ye.M.; TUBYANSKAYA, G.S.

Effect of certain complex compounds on the resistance of polydimethyl  
siloxanes to thermal oxidation. Plast. massy. no.9:35-37 '65.  
(MIRA 18:9)

SAVICH, I.A.

Chemical Abst.  
Vol. 48 No. 9  
May 10, 1954  
General and Physical Chemistry.

The solubility of calcium molybdate. Vikt. I. Spitsyn and I. A. Savich (M. V. Lomonosov State Univ., Moscow) *J. Gen. Chem. U.S.S.R.* 22, 1323-6 (1952) (Engl. translation); *Zhur. Obshchei Khim.* 22, 1278-81 (1952).—The soly. in water of normal Ca molybdate was studied over the temp. range of 0°-100°. Colorimetric detn. of the Mo content and detn. by the method of evapn. of satd. solns. of Ca molybdate gave results in close agreement. The soly. curve

of Ca molybdate is characterized by an inflection point (max.) at a temp. of 80°. Bernard Rubin

11-9-64  
RNB



SAVICH, I. A.

Determination of the solubility of the polymers of the  
with metals by means of tested studies

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4E4

SAVICH, I. A., PIKAYEV, A.K., LEBEDEV, I. A., and SPITSYN, V. I.

"Complex Compounds of Hexavalent Uranium With Some Organic Substances; Part 1 -- Inner Complex Compounds of Uranium With Some Schiff Bases," by I. A. Savich, A. K. Pikayev, I. A. Lebedev, and V. I. Spitsyn, Moscow State University, Zhurnal Neorganicheskoy Khimii, Vol 1, No 12, Dec 56, pp 2736-2741

The article describes the methods of preparation and properties of ten new inner-complex salts of hexavalent uranium with Schiff bases derived from aromatic hydroxy-aldehydes and heterocyclic amines.

Sum 1258

SAVICH, I. A., PIKAYEV, A. K., RYKOV, A. G., and SPITSYN, V.I.

"Complex Compounds of Hexavalent Uranium With Some Organic Substances; Part 2 -- Inner-Complex Salts of the Uranyl Ion With Some Derivatives of 2-Naphthol and of 1,2-Naphthoquinone," by I. A. Savich, A. K. Pikayev, A. G. Rykov, and V. I. Spitsyn, Moscow State University, Zhurnal Neorganicheskoy Khimii, Vol 1, No 12, Dec 56, pp 2742-2745

According to the article, compounds of the uranyl ion with 3-bromo-1,2-naphthoquinonemonoxime-1 and 3,4-dichloro-1,2-naphthoquinone-monoxime-1 were obtained. It was established that the compound of 3-bromo-1,2-naphthoquinonemonoxime-1 with uranyl forms crystalline solvates with water and alcohol. The solubility of these solvates in water was determined.

Sum 1258

SAVICH, I. A., PIKAYEV, A. K., RYKOV, A. G., and SPITSYN, V. I.

"Complex Compounds of Hexavalent Uranium With Some Organic Substances; Part 3 -- Precipitation of Uranium From Aqueous Solutions by Means of Some Substances Related to 1-Nitroso-2-Naphthol," by I. A. Savich, A. K. Pikayev, A. G. Rykov, and V. I. Spitsyn, Moscow State University, Zhurnal Neorganicheskoy Khimii, Vol 1, No 12, Dec 56, pp 2746-2748

It has been established that 3-bromo-1,2-naphthoquinonemonoxime-1 can be used as a precipitant for uranium. The precipitation of uranium with this reagent is complete and takes place at  $pH \approx 2.7$ . It has furthermore been established that 3,4-dichloro-1,2-naphthoquinonemonoxime-1 cannot be used as a reagent for the precipitation of uranium.

Sum 1258

SAVICH, I.A.; PIKAYEV, A.K.; LEBEDEV, I.A.; SPITSYN, Vikt.I.

Synthesis of the series of Schiff bases formed from aromatic  
o-oxyaldehydes and heterocyclic amines. Vest.Mosk.un. Ser.mat.,  
mekh.,astron.,fiz.,khim.11 no.1:225-231 '56. (MIRA 10:12)

1. Kafedra neorganicheskoy khimii Moskovskogo universiteta.  
(Aldehydes) (Bases (Chemistry)) (Amines)

*SAVICH, I.A.*

SAVICH, I.A.; ZELENTSOV, V.V.; SPITSYN, Vikt.I.

Synthesis of the series of Schiff bases formed from 2-oxy-1-naphtaldehyde and certain amines. Vest.Mosk.un. Ser.mat., mekh.,astron.,fiz.,khim.11 no.1:233-237 '56. (MIRA 10:12)

1. Kafedra neorganicheskoy khimii Moskovskogo universiteta.  
(Naphtaldehyde) (Bases (Chemistry)) (Amines)

AUTHORS: Zelentsov, V. V., Savich, I. A., Spitsyn, SOV 156 58-1-14/46  
Vikt. I.

TITLE: The Intra-Complex Compounds of the Hexavalent Molybdenum With  
Several Schiff Bases (Vnutrikompleksnyye soyedineniya shestiva-  
lentnogo molibdena s nekotorymi shiffovymi osnovaniyami)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya  
tekhnologiya, 1958, Nr 1, pp. 54 - 58 (USSR)

ABSTRACT: After a survey of publications (Refs 1-5) the authors say  
that all elements of the VI<sup>th</sup> side-subgroup of the periodic  
law of D.I.Mendeleev are able to form oxy-compounds which  
contain a  $MoO_2^{2+}$  -radical. Owing to the similarity of the  
structure and several properties of the oxychlorides of  
chromium, molybdenum, tungsten, and uranium it may be assumed  
that this subgroup of elements is able to form complexes with  
Schiff (Shiff) bases. Preliminary experiments have shown that  
the intra-complex compounds may be obtained only by means of  
molybdenum oxychloride. 8-oxyquinoline and several of its  
derivatives form stable intra-complex compounds with the  $MoO_4^{2-}$

Card 1/3

The Intra-Complex Compounds of the Hexavalent  
Molybdenum With Several Schiff Bases

SOV/156.58-1-14/46

ion, as is known. These compounds are used to a great extent in analytical practice. However, compounds like those mentioned in the title have never been produced. In the case of the method described in the present paper absolute ether and the solutions of corresponding Schiff (Shiff) bases are used which were formed by salicyl-, 2-oxy-1-naphthoe aldehyde and by a number of aromatic amines. The production methods of the molybdenum oxychloride and the Schiff bases are described in an experimental part. Furthermore the production of the intra-complex molybdenum compounds is described: 1) Molybdenyl-salicylal-anilate. 2) Molybdenyl-salicylal-p-nitroanilate. 3) Molybdenyl-salicylal-nitroanilate. 4) Molybdenyl-2-oxy-1-naphthalanilate. 5) 2-oxy-1-naphthal-p-nitroanilate ("molybdenyl" is missing in the original, the reviewer). 6) Molybdenyl-2-oxy-1-naphthal-p-anisidinate. 7) Molybdenyl-2-oxy-1-naphthal-p-toluidinate. Some properties of the above mentioned synthesized substances are described. There are 9 references, 4 of which are Soviet.

Card 2/3



The Intra-Complex Compounds of the Hexavalent  
Molybdenum With Several Schiff Bases

SOV 156 .58-1-14/46

ASSOCIATION: Kafedra neorganicheskoy khimii Moskovskogo gosudarstvennogo  
universiteta im.M.V.Lomonosova (Chair of Inorganic Chemistry  
of the Moscow State University imeni M.V. Lomonosov)

SUBMITTED: September 25, 1957

Card 3/3

AUTHORS: Zelentsov, V. V., Nesmeyanov, An. N., SOV 156-58-1-15/46  
Savich, I. A.

TITLE: The Isotopic Exchange in Some Intra-Complex Compounds of  
Hexavalent Molybdenum (Izotopnyy obmen v nekotorykh vnutri-  
kompleksnykh soyedineniyakh shestivalentnogo molibdena)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya  
tekhnologiya, 1958, Nr 1, pp. 59 - 61 (USSR)

ABSTRACT: The authors proved already earlier that the Schiff bases  
which develop from the condensation of o-oxy aldehydes with  
aromatic amines, may form intra-complex compounds with a  
molybdenyl ion. Some of their properties are given in short.  
In order to explain the structure of the compounds discussed  
it was necessary to determine the character of the bond between  
the central complex forming group

$\text{MoO}_2^{2+}$  and the organic radicals. The authors assume that the  
isotopic exchange is one of the criteria which make possible  
the further investigation of the said bond. The difference  
between the  $\text{MoO}_2^{2+}$  -ion in the complex compound (bottom phase)

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The Isotopic Exchange in Some Intra-Complex Compounds  
of Hexavalent Molybdenum

SOV/156-58-1-15/46

and the same ion which forms a soluble molybdenyl salt in the solution is to be investigated here. A lacking exchange would speak in favor of a covalent character of the bond. If an exchange takes place, the bond has a more or less ionic character. The authors investigated the exchange degree and the exchange velocity of the group  $\text{MoO}_2^{2+}$  of the dicyclical intra-complex compounds. Absolute ether was chosen as medium, though the exchange velocity was much reduced by it. The production method of the used molybdenum oxychloride is described. The active intra-complex compounds were produced by the action of a corresponding Schiff base on the molybdenum oxychloride. Table 1 shows the molybdenum content in the produced preparations. The results of the measurements of the exchange reactions of the intra-complex salts are given in tables 2 and 3. Table 3 shows that the exchange velocity is gradually reduced with the prolongation of the contact duration. This may be explained by the low diffusion velocity in the solid phase. In consequence of this the specific activity of the surface layers of the solid phase is reduced and approaches the specific activity of the solution. The existing exchange shows that the bond of

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The Isotopic Exchange in Some Intra-Complex Compounds of Hexavalent Molybdenum SOV 156 -58-1-15/46

the ion  $\text{MoO}_2^{2+}$  in the complexes has a mainly ionic character.

The difference of the exchange velocity is explained apparently by the different solubility of the complexes investigated here. There are 3 tables and 1 Soviet reference.

ASSOCIATION: Kafedra neorganicheskoy khimii Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Chair of Inorganic Chemistry of the Moscow State University imeni M.V. Lomonosov)

SUBMITTED: September 29, 1957

Card 3/3

SOV/156-58-3-15/52

The Investigation of the Magnetic Susceptibility of Internal Complex Salts  
of Copper With o-Oxy Aldehydes and Their Azometine Derivatives

only the spin into account.

Considering the magnitude of the magnetic moment the authors assume that all the complex compounds of copper they investigated have the same structure with  $sp^2d$  bonds.

The magnetic susceptibility was determined by Faraday's method using a magnetic torsion balance. The latter was constructed at the Laboratory for Catalysis and the Electrochemistry of Gases of Moscow State University (Laboratoriya kataliza i gazovoy elektrokhemii MGU). There are 2 tables and 13 references, 1 of which is Soviet.

ASSOCIATION: **Kafedra** neorganicheskoy khimii Moskovskogo gosudarstvennogo universiteta imeni M. V. Lomonosova  
(Chair of Inorganic Chemistry at Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 3, 1958

Card 2/2

AUTHORS: Spitsyn, Vikt. I., Savich, I. A. SOV/78-3-8-45/48

TITLE: The Effect of the ~~Addition of Some Salts~~ on the Solubility of Calcium Molybdate (Vliyaniye dobavok nekotorykh soley na rastvorimost' molibdata kal'tsiya)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1979-1981 (USSR)

ABSTRACT: The solubility of calcium molybdate in the case of additions of the chlorides and sulfates of sodium were investigated. No noticeable increase of the solubility occurs at low concentrations of NaCl and  $\text{Na}_2\text{SO}_4$  (0,001-0,01 N). With the increase of the concentration of the salts mentioned above to 0,1 N a considerable increase of the solubility of calcium molybdate occurs. The solubility further increases with an increase in the concentration from 0,5 to 1 N. Sodium sulfate solution because of its considerable ionic force, with otherwise equal concentrations, exerts the greatest effect on the solubility of calcium molybdate. The activity coefficient of the ions  $\text{Ca}^{2+}$  and  $\text{MoO}_4^{2-}$  in saturated solutions of calcium molybdate

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SOV/78-3-8-45/48

The Effect of the Addition of Some Salts on the Solubility of Calcium Molybdate

amounts to 0,78. Contrary to sodium chloride solutions the activity coefficient of the ions  $\text{Ca}^{2+}$  and  $\text{MoO}_4^{2-}$  is rapidly decreased with sodium sulfate solutions. The activity coefficient of the ions in NaCl solutions with concentrations of 0,1-1N differs between 0,75 and 0,26. In solutions of sodium sulfate with the same concentrations the activity coefficient differs between 0,37 and 0,20. There are 2 figures, 2 tables, and 4 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
Kafedra neorganicheskoy khimii (Moscow State University imeni  
M. V. Lomonosov, Chair of Inorganic Chemistry)

SUBMITTED: November 15, 1957

Card 2/2

AUTHORS: Zelentsov, V. V., Savich, I. A.,  
Yevdokimov, V. B. SOV/156-58-4-15/49

TITLE: The Magnetic Susceptibility of the Inner Complex Salts of Nickel  
(Magnitnaya vospriimchivost' vnutrikompleksnykh soley nikelya)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya  
tekhnologiya, 1958, Nr 4, pp 672-675 (USSR)

ABSTRACT: In the present paper the change of the magnetic properties,  
and the structure of the inner complex salts of nickel in  
dependence on the nature of the addenda was investigated. An  
inner complex salt of nickel was synthesized with an o-oxy-  
aldehyde for the first time. These compounds possess tetra-  
hedral structure and are paramagnetic. All complex compounds  
of nickel with Schiff's bases are either paramagnetic or  
diamagnetic. It was shown that the differences of paramagnetic  
and diamagnetic properties of complex compounds are not always  
characterized undoubtedly by colors. The addenda do not exert  
any decisive influence upon the magnetic properties and  
coloring. There are 2 tables and 7 references, 2 of which are  
Soviet.

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The Magnetic Susceptibility of the Inner Complex Salts of  
Nickel

SOV/156-58-4-15/49

ASSOCIATION: Kafedra neorganicheskoy khimii Moskovskogo gosudarstvennogo  
universiteta im. M. V. Lomonosova (Chair of Inorganic Chemistry  
at the Moscow State University imeni M. V. Lomonosov)

SUBMITTED: April 23, 1958

Card 2/2

AUTHORS: Zelentsov, V. V., Savich, I. A., SOV/20-122-1-21/44  
Spitsyn, Vikt. I., Member, Academy of Sciences, USSR

TITLE: On the Problem of Stereochemistry of Intracomplex Compounds  
of Vanadyl (K voprosu o stereokhimii vnutrikompleksnykh  
soyedineniy vanadila)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 1,  
pp 80 - 81 (USSR)

ABSTRACT: Some problems as mentioned in the title concerning the  
stereochemistry of vanadyl compounds with azomethyl  
derivatives of the aromatic o-oxy-aldehydes are  
discussed in this paper. Although the magnetic moment  
of the complex compounds of vanadyl does not depend  
upon the coordination number of the central atom  
it is possible to draw some conclusions on the mentioned  
stereochemistry by comparing this moment with the  
results of analyses. The crystalline intracomplex  
vanadyl compounds which were synthesized by the authors  
were analyzed after having been dried until a constant  
weight was reached and their magnetic susceptibility

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On the Problem of Stereochemistry of Intracomplex  
Compounds of Vanadyl

SOV/20-122-1-21/44

was determined. The chemical analysis proves that they contain no solvents (Table 1). As table 2 shows the magnetic moments of the synthesized compounds are between 1,76 and 1,80 mv. If the oxygen atom takes as a rule a single place in the coordination system the coordination number of vanadium is not six but five in these compounds. This is in contrast to reference 2. The assumption that the vanadium ion lies in the base of a tetragonal pyramid is more likely to be right. This is proved by the fact that in vanadyl-o-oxy-quinoline (Ref 4) the pyridine molecule is connected with the central ion as regards the coordination. The free pair of electrons of the nitrogen atom takes the free 4p-orbit in the pyridine molecule. The square pyramid grows steadily until it is an octahedron. Based upon the mentioned facts the authors are of opinion that the initially mentioned vanadyl compounds have the structure of a square pyramid. Thanks to the  $d^2sp^2$  hybridization the  $\sigma$ -bindings exist. Apart from this a 3d-orbit of vanadium takes part in the formation

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On the Problem of Stereochemistry of Intracomplex  
Compounds of Vanadyl

SOV/2o-122-1-21/44

of a solid  $\pi$ -binding with an oxygen atom. The structure  
of those compounds is explained by means of the formulae  
A and B. There are 2 tables and 8 references, 1 of which  
is Soviet.

SUBMITTED: May 27, 1958

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5(4)

SOV/20-128-3-27/58

AUTHORS: Aminov, T. G., Zelentsov, V. V., Savich, I. A.

TITLE: Magnetic Susceptibility of Some Oxalate Complexes of Quadri-valent Uranium

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 3, pp 533-535 (USSR)

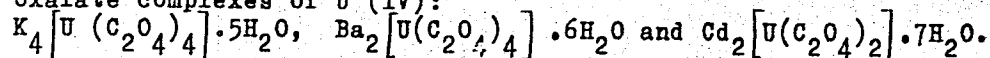
ABSTRACT: The investigation of the problem mentioned in the title facilitates the answer to the question as to the electronic configuration of quadrivalent uranium. In its ion, 2 nonpaired electrons may occupy the paths 6d or 5f. Then, their ground state is determined - according to Hund's rules - by the terms  $^3F_2$  and  $^3H_4$ , while their effective magnetic moments will amount to 1.63 and 3.58 magnetons of Bohr, respectively, if the interaction of Russell-Saunders takes place. As the electrons of level 6d are more intensely subjected to the influence of electric fields of neighboring atoms, the orbital component is almost completely suppressed in most cases, and the magnetic moment in this case is only determined by the spin, and amounts to  $\mu_{\text{eff}} = 2.83 \mu_B$ . The present paper gives investigation results of the magnetic susceptibility of 3

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SOV/20-128-3-27/58

Magnetic Susceptibility of Some Oxalate Complexes of Quadrivalent Uranium

oxalate complexes of U (IV):



The susceptibility of these substances was first investigated by A. A. Grinberg and T. K. Petrzhak (Ref 1), but only at room temperature and without correction for the diamagnetism of the cation and oxalate ion. The authors studied this susceptibility over a wider temperature range. The knowledge of the Weiss constant, and the consideration of all diamagnetic corrections, make possible a more accurate computation of the effective magnetic moments of U (IV) in the above-mentioned salts. Table 1 gives their analysis. The magnetic susceptibility was determined by Guf's method. A special device was used making possible the investigation over a temperature range from room temperature up to the boiling point of liquid nitrogen. Mohr's salt was used as a standard substance. The measurement results of the susceptibility of the above complexes are given in table 2 and figure 1. Figure 1 shows that all compounds investigated follow the law of Curie-Weiss above 195°K. At lower temperatures, considerable deviations occur which are different for the individual compounds (similar to Refs 3,4).

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SOV/20-128-3-27/58

Magnetic Susceptibility of Some Oxalate Complexes of Quadrivalent Uranium

They are due to magnetic anomalies at low temperatures. With the falling temperature, the susceptibility starts increasing more slowly than it would have to according to formula

$\chi = \frac{C}{T + \Delta}$ . Table 2 shows the  $\mu_{\text{eff}}$  and the Weiss constants of the said complexes. V. B. Yevdokimov helped by giving valuable advice. There are 1 figure, 2 tables, and 4 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy fiziko-tekhnicheskii institut  
(Moscow Physico-technical Institute)

PRESENTED: April 21, 1959, by V. I. Spitsyn, Academician

SUBMITTED: February 24, 1959

Card 3/3

05124

S/189/60/000/003/009/013/XX  
B003/B067

2209, 1273, 1274

5.3700

AUTHORS:

Chzuan Ya - uy, Savich, I. A., Lapitskiy, A. V.,  
Samorukov, V. R., Titov, L. G.

TITLE:

Inner Complex Compounds of Titanium, Zirconium, Niobium,  
and Tantalum With Certain Schiff Bases

PERIODICAL:

Vestnik Moskovskogo universiteta. Seriya 2, khimiya, 1960,  
No. 3, pp. 40-45

TEXT: The present paper describes the complex compounds of the elements Ti, Zr, Nb and Ta with Schiff bases. The initial substances were: titanium tetrachloride, zirconium oxychloride (produced from zirconium sulfate), the pentachlorides of niobium and of tantalum (produced from the pentoxides (Ref. 4)) and the Schiff bases disalicylal dianisidine, di-(3-methyl-2-hydroxy-benzal)-dianisidine, di(5-bromo-2-hydroxy-benzal)-dianisidine (these compounds were synthesized by the author for the first time) (Table 2) and 12 further substances (Table 1). Carbon tetrachloride and chloroform (both purified, dehydrated, and distilled above phosphorous pentoxide were used as solvents). Titanium complexes:

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Inner Complex Compounds of Titanium,  
Zirconium, Niobium, and Tantalum With  
Certain Schiff Bases

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B003/B067

$\text{CCl}_4$ -solutions of  $\text{TiCl}_4$  and the Schiff basis concerned were mixed at a molar ratio of 1:2 and 1:1, respectively. The precipitates obtained were washed with absolute ether for three to four hours in the Soxhlet apparatus and dried at  $90^\circ\text{C}$ . The analysis of the compounds obtained was made by determining titanium (as  $\text{TiO}_2$ ), nitrogen (according to Dumas), chlorine (as  $\text{AgCl}$ ). Table 3 shows the results of the analyses and the properties of the compound. The following was obtained: Ti-salicylal metanitroanilate, Ti-salicylal aminopyridinate, Ti-salicylal para-iodoanilate, Ti-2-(4-methyl-2-hydroxybenzal amino)-pyridinate, Ti-3,5-dibromo-2-salicylal aminopyridinate, Ti-5-bromo-2-hydroxybenzal anilate, Ti-3,5-dichloro-2-salicylal aminopyridinate, Ti-5-chloro-2-(5-bromo-2-hydroxybenzal aminopyridinate, Ti-5-chloro-2-salicylal aminopyridinate), Ti-5-bromo-2-hydroxybenzal metanitroanilate, Ti-disalicylal ethylene-diiminate, Ti-2,6-disalicylal aminopyridinate, Ti-disalicylal-o,o-dianisidinate. Zirconium complexes: Well definable compounds could be obtained only under the action of solutions of disalicylal dianisidine in dioxane on a 90% zirconium oxychloride solution. The analysis was the same as for

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Inner Complex Compounds of Titanium,  
Zirconium, Niobium, and Tantalum With  
Certain Schiff Bases

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titanium compounds (Table 3). Zr-disalicylal-o,o-dianisidinate was obtained. The niobium and tantalum complexes were obtained in the same manner as the titanium complexes. The following was obtained: Nb-disalicylal ethylenediiminate, Nb-salicylal paraiodoanilate, and the two analogous Ta compounds. All complex compounds are insoluble or difficultly soluble in organic solvents. Table 4 gives the results obtained with 32 different organic solvents. The complexes are hydrolized in water. The physico-chemical properties of the complexes will be dealt with in another paper. Among others the papers by V. I. Kuznetsov (Refs. 1,2) and A. P. Terent'yev (Ref. 9) are mentioned. There are 4 tables and 13 references: 7 Soviet, 5 German, and 1 US.

ASSOCIATION: Moskovskiy universitet, Kafedra radiokhimii (Moscow  
University, Chair of Radiochemistry)

SUBMITTED: September 26, 1959

Card 3/3

21128

S/189/60/000/005/006/006  
B110/B207

5.3700 2209

AUTHORS: Lapitskiy, A. V., Chuang Ya-Wui, Savich, I. A.

TITLE: Disalicylal ethylene diiminates of titanium, niobium,  
tantalum, and protactinium

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya 2, khimiya, no. 5,  
1960, 78-79

TEXT: The disalicylal ethylene diiminates, DSED of titanium, niobium and tantalum are soluble in organic solvents, the stability of the solutions decreasing with increasing dielectric constant of the solvent. The solubility of the DSED of Ti, Nb, Ta in CCl<sub>4</sub> was studied (Table 1), partly with tracer atoms (Nb<sup>95</sup>, Ta<sup>182</sup>) which were measured with a front counter. The solubility of the Ti compound was calorimetrically determined. The compounds dissolve congruently which is confirmed by the unchanged composition of the solid phases (by chemical and X-ray analysis). With a low dielectric constant of carbon tetrachloride, the compounds are likely to be molecularly dissolved. The solutions may be regarded as ideal since

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B110/B207

Disalicylal ethylene...

their solubility is low. Disregarding the change of the heat of dissolution, it is possible to use the formula for ideal solutions:  $\lg N = \lambda / 4.575T + A$ , for the calculation of the heat of dissolution where  $\lambda$  = the heat of dissolution,  $N$  = molar ratio of the dissolved substance,  $A$  = a constant. Accordingly,  $\lambda$  was calculated to be 8.3 kcal/mole for the niobium compound and 6.9 kcal/mole for the tantalum compound.  $\text{Pa}^{233}$  was studied by V. G. Khlopin's method (Ref. 5: Radiokhimiya (sbornik rabot) Izdatel'stvo MGU, 1952, 115. (Radiochemistry (collection of publications) Moscow University Publishing House)) to investigate the distribution of the micro-component between the precipitates and the saturated solutions of the DSED of Nb, Ta and Ti at  $20 \pm 0.1^\circ\text{C}$ . Even after 20 days of continuous stirring, no constant values were found for  $D$  and  $\lambda$  in the system of the Ti - Pa compounds. Thus, no isomorphic distribution exists between liquid and solid phase. In the systems Nb - Pa and Ta - Pa, however, there are constant values for  $D$  and  $\lambda$  (Table 2) which indicates an isomorphic protactinium distribution in the crystals of the macrocomponent. The compound  $\text{PaR}_2\text{Cl}_3$  thus formed is soluble in  $\text{CCl}_4$  at  $20^\circ\text{C}$  to  $\sim 10^{-7}$  mole/l, the heat of dissolution is approximately 6 kcal/mole [Abstracter's note: This is an almost complete translation of the original.] There are 2 tables and 5 Soviet-bloc references.

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